

REMARKS

This Response is filed in reply to a second non-final Office Action mailed on August 31, 2009. Claims 6-10, 12-14, and 16-23 are pending and stand rejected under 35 U.S.C. §103(a). In response, Applicants have amended claim 16 to correct a redundancy, but otherwise do not amend the claims and argue over each of the rejections. Applicants believe that the rejections should be withdrawn at least in view of the reasons detailed below. The Director is authorized to charge any fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712174-424 on the account statement

In the Office Action, claims 22 and 23 are rejected under §103(a) as being unpatentable over JP 2002-075368 (hereinafter "Yamaura") in view of U.S. 6,258,483 (hereinafter "Abe") and as evidenced by U.S. 2002/0192137. Claims 6-9, 12-13 and 16-21 are rejected under §103(a) as being unpatentable over Yamaura in view of Abe and WO 00/02280 ("Kurose") using U.S. Patent No. 6,824,924 as an English translation. Independent claims 6, 15, and 22 are directed to a positive active material, whereas independent claims 12, 19, and 23 are directed to a non-aqueous electrolyte secondary battery. Common to all six independent claims is the recited lithium nickelate formula where M' is selected from the group consisting of Fe, Mn, Cu, Zn, Sn, Ga, Cr, V, Ti, Mg, Ca, Sr, and mixtures thereof, and an olivine compound having a formula Li_xMPO_4 , and M is selected from a group consisting of Fe, Mn, Co, Ni, Cu, Zn, Mg. All six independent claims also require the limitation that the content of the olivine compound in the positive active material range from about 5 wt % to about 50 wt%.

In rejecting each of these claims, the Patent Office has relied primarily on Yamaura. In the previous response to Office Action, the Patent Office contended that the 5 wt% to 50 wt% range, while not disclosed by Yamaura, was obvious as a results effective variable. However, based on the arguments presented by Applicants in the previous response to that office action, the Patent Office was persuaded and withdrew that rejection. The Patent Office now offers new grounds for that rejection - the teachings in a second reference, Abe, can be applied to determine what the best ratio of coating material to base material in Yamaura would be. Applicants respectfully disagree for at least three reasons.

First, it is unclear what teaching in Abe the Patent Office is relying upon. The only citation that the Patent Office gives is Abe, col. 6, ln. 2-5, for the concept of a coating on top of

an active. But the next statement in the Office Action, that “Abe further teaches that the right amount of coating should be determined, since if there is too much or too little the active material will not have the desired properties of both materials” is unsupported. The statement is simply conclusory – that one of ordinary skill in the art would somehow find the desired amount. This does not support the Patent Office’s contention that Abe teaches how to determine what is appropriate amount of material to coat. In fact, based on the information within Abe’s specification, Abe appears directed to something else entirely – how to prepare a cobalt hydroxide that is both amorphous and difficult to oxidize. Abe, col. 5. ln. 40-46.

Second, even assuming the teaching alleged by the Patent Office is present for the chemistry in Abe, it is not clear how that is applicable. Abe describes aqueous solution chemistry involving precipitation-based reactions which produce slurries of mixed hydroxides. While there may be a coating of one material on another, the products are also described as “a mixture of a mass of nickel hydroxide particles and a mass of cobalt hydroxide particles.” Abe, col. 5 ln. 59-61. Moreover, the mixture seems described more as a slurry, with “surfaces of innumerable active material particles of nickel hydroxide...coated with particles cobalt hydroxide, in other words in such a state that the cobalt hydroxide particles are interposed between the nickel hydroxide particles. In other words, particles of each material, with enough cobalt hydroxide to fill in between some of the nickel hydroxide.

Third, Abe and Yamaura are not combinable. Specifically the chemistry in Abe and the disclosure in Yamaura are completely counter to one another. Yamaura is directed to lithium batteries, the basis for which is the insertion and extraction of lithium from anodes and cathodes, very often in the form of insertion into and extraction from the crystalline structures of the active materials. Abe, on the other hand, is simple alkaline battery technology based on traditional oxidation-reduction pathways of the associated metal salts. Most relevant is that the olivine type crystal structures in Yamaura are highly order crystal structures. These materials are prepared by furnace-based calcination of components. See, e.g. U.S. 6,391,493, Goodenough, col. 11, ln. 50-57 (cited in the rejection of claims 10 and 14 by the Patent Office). Brute force acid-base precipitations in aqueous solutions as disclosed by Abe are not relevant to preparations of these compounds. Moreover, Abe is directed to amorphous precipitations of simple compounds, which is completely counter to the crystallization of the olivine LiMPO_4 of Yamaura.

For the reasons asserted above, Applicants assert that the rejection based on Yamaura and Abe is improper and should be withdrawn. Applicants contend that the alleged teaching is not present, that whatever teaching is present resolved the issue that the Patent Office alleges, and that the references are not combinable because of the very nature of the compounds and chemistries that they describe. Because each of the rejections of the independent claims relies on Yamaura and Abe, the further rejections of the dependent claims are also improper and should be withdrawn. Applicants assert that the application is now in condition for allowance and earnestly request consideration of the same.

Respectfully submitted,

K&L Gates LLP

BY 

Thomas C. Basso

Reg. No. 46,541

Customer No. 29175

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